



SOCIAL AND ECONOMIC DETERMINANTS OF BIRTH RATES IN 2023

A CROSS-COUNTRY ANALYSIS

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OVERVIEW

UNDERSTANDING FERTILITY DIFFERENCES ACROSS COUNTRIES

- Explore the social and economic factors shaping birth rates in 2023.
- Examine cross-country data from 65 nations.
- Present key findings and policy implications for sustainable population growth.

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BACKGROUND OF THE STUDY

- Fertility rates affect population growth, labour force, dependency ratios, and public finances.
- Cross-country differences arise from social, health, and economic factors.
- 2023 is critical: post-pandemic recovery, delayed childbearing, declining child mortality, and population ageing.
- Understanding social and economic determinants together is essential for informed policy.



PROBLEM STATEMENT

01

SCOPE OF THE STUDY

- Cross-country analysis of 65 countries in 2023.
- Focus on social factors (maternal age, age dependency, child mortality) and economic factors (GDP per capita, government revenue, government spending).

02

RELEVANCE OF THE STUDY

- Provides evidence on what drives fertility differences in a post-pandemic context.
- Supports policy planning for maternal and child health, economic stability, and reducing socio-economic inequalities.

03

RESEARCH QUESTION

How do social and economic determinants jointly influence cross-country variation in birth rates in 2023?

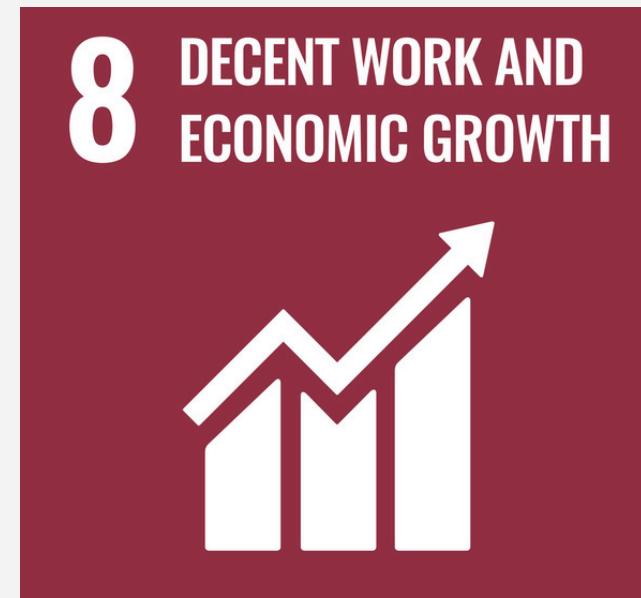
USE CASE

Understand which factors drive fertility differences to inform policy.

PROPONENTS



Support maternal and child health policies (SDG 3)



Guide economic planning and workforce policies (SDG 8)



Reduce socio-economic inequalities in fertility outcomes (SDG 10)

DATASET



SOURCE:

Our World in Data (OWID), World Bank, IMF, Penn World Table

SAMPLE:

65 countries, year 2023

VARIABLES:

- Dependent: Crude Birth Rate (CBR)
- Social/Demographic: Avg maternal age, age dependency ratio, child mortality, crude death rate
- Economic/Fiscal: GDP per capita, government revenue (% GDP), government spending (% GDP)

METHODOLOGY

Econometric Approach

MODEL

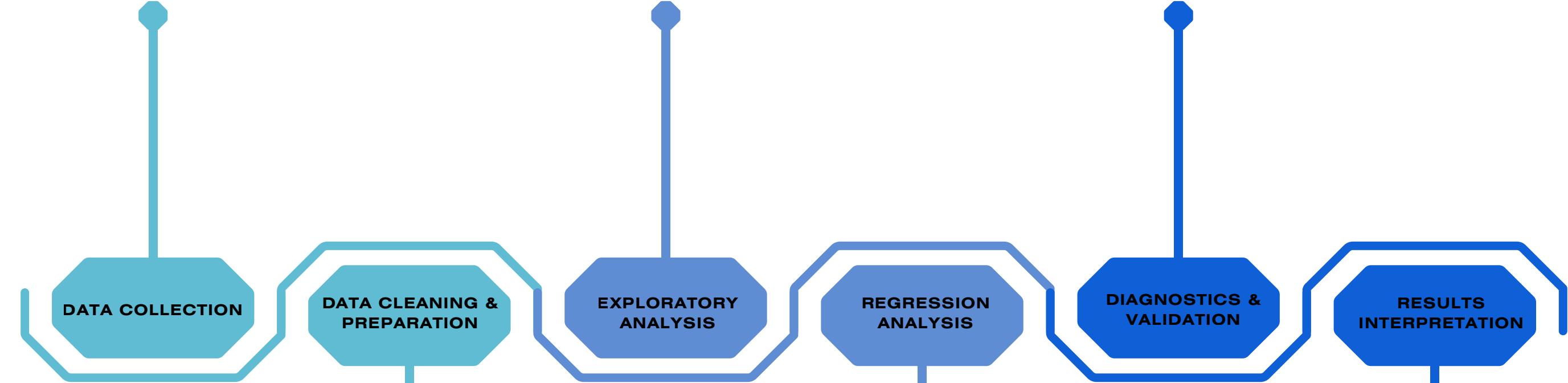
- Ordinary Least Squares (OLS) regression
- Log-linear specification to improve model fit
- Log transformation applied to GDP per capita and child mortality

DIAGNOSTICS & ROBUSTNESS

- Ramsey RESET test indicated misspecification
- Log-linear model selected as the preferred specification
- Heteroskedasticity-robust standard errors (HC1) used for inference

WORKFLOW

Gather national-level indicators
for 65 countries (2023).

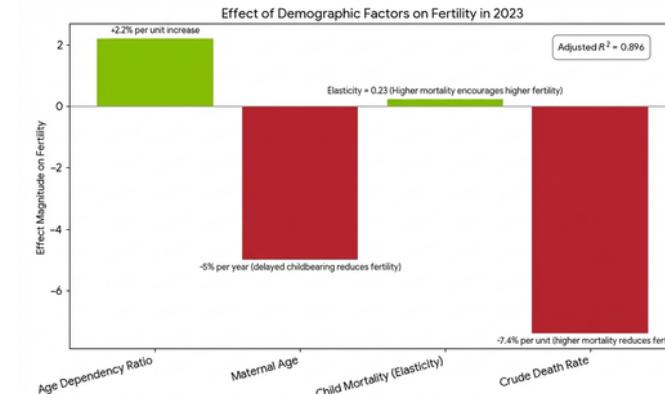


Ensure consistency and handle
missing values.

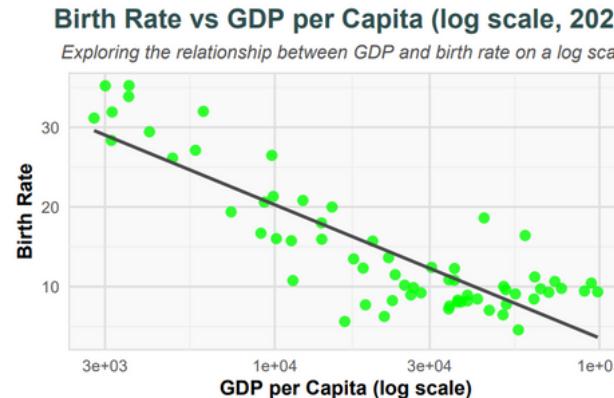
Apply log-linear OLS with
robust standard errors.

Compare the impact of social vs
economic determinants.

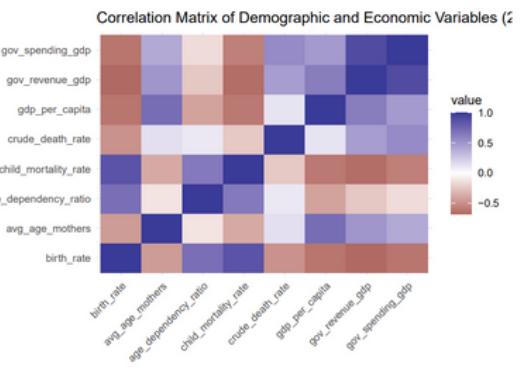
KEY FINDINGS



SOCIAL/DEMOGRAPHIC FACTORS



ECONOMIC/FISCAL FACTORS



IMPLICATION

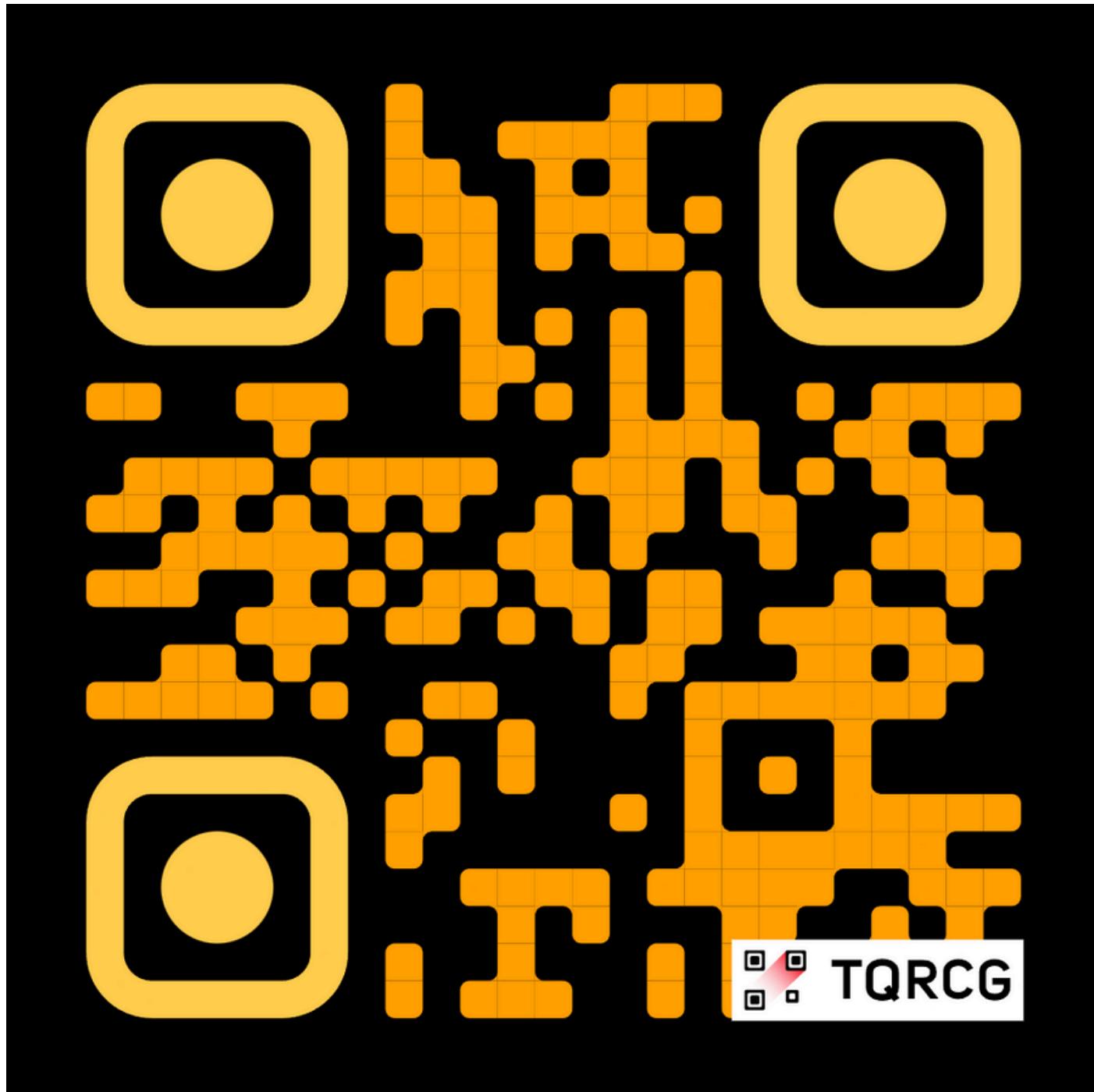
- Age Dependency Ratio → +2.2% per unit
- Maternal Age → -5.2% per year
- Child Mortality → +0.23 elasticity
- Crude Death Rate → -7.4%

- GDP per capita → Not significant
- Government revenue → Not significant
- Government spending → Not significant

- Fertility differences primarily driven by demographic and mortality conditions.
- Long-term social policies are more effective than short-term fiscal interventions.

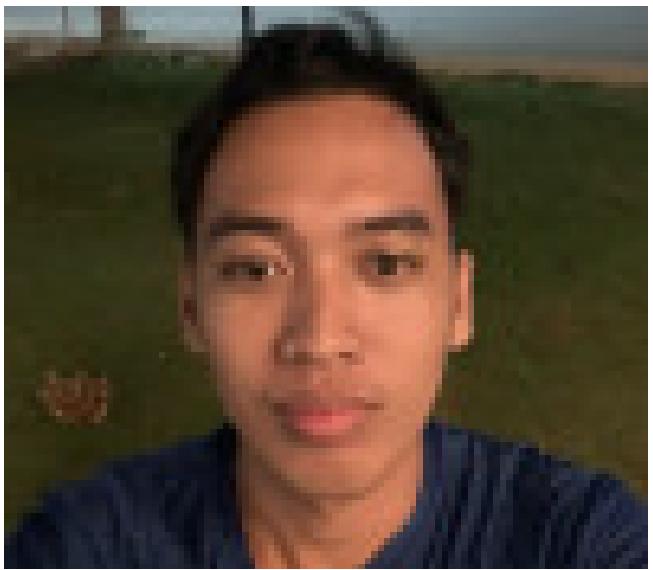
CONCLUSION

Fertility differences in 2023 are mainly driven by social and demographic factors, including maternal age, age dependency, child mortality, and crude death rate, while economic and fiscal variables show no significant effect. Effective policy should focus on long-term structural interventions, such as improving child survival, supporting work-life balance, and adapting to ageing populations, as short-term fiscal measures alone are insufficient. Future research could use panel data to better capture the dynamic relationship between economic conditions and fertility trends.



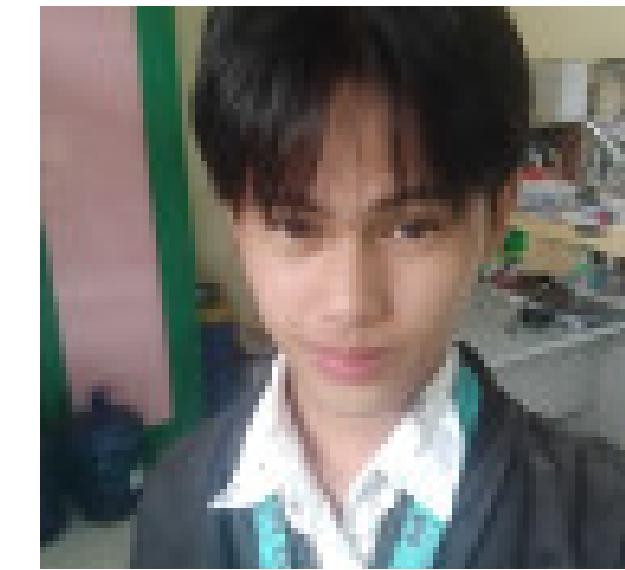
OUR PORTFOLIO





JOSH T. GANHINHIN

Led the team with dedication, ensuring clarity and organisation throughout the project.



MARK ORAÑO

Kept the team coordinated and focused, supporting smooth collaboration.



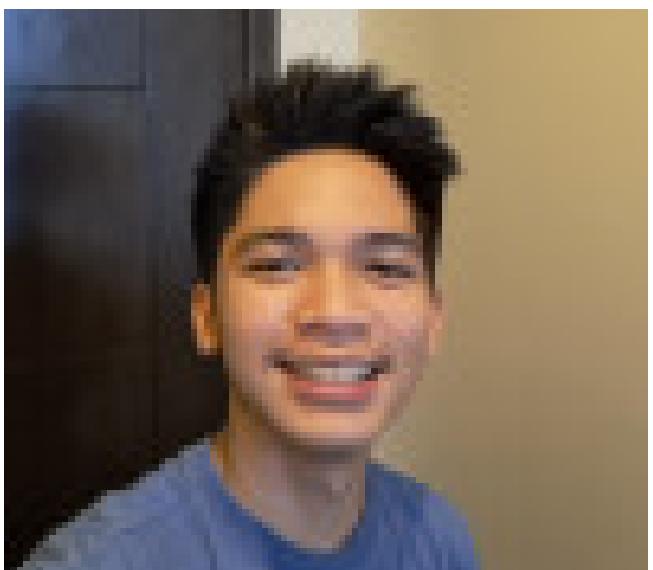
JOMAR B. LIGAS

Provided critical insights that strengthened our data analysis and interpretations.



PHILIP ANDREE C. TUPAS

Contributed rigorous analysis, enhancing the quality of our conclusions.



LEX LEANDER V. LUMANTAS

Ensured accurate results with his technical expertise and attention to detail.

LIFEPULSE

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THANK YOU

Linear and NonLinear Model